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The 1996 Sunflower Research Workshop, sponsored by the National Sunflower Association, took place on January 9 and 10, 1997, at the Ramada Plaza Suites, Fargo, ND. The workshop was very well attended and received by public and private researchers from the United States and Canada, as well as other interested parties.

This volume contains nearly all the presentations given at the 1996 workshop. Some of the papers are summarized or abstract form.

The National Sunflower Association would like to extend its appreciation to those presenting papers/posters at this annual Sunflower Research Workshop and to those who participated by their attendance and questions. Special thanks are extended to the NSA Research Forum Planning Committee, Dr. Mary Lou Straley, Cargill, Inc.; Dr. Brady Vick and Dr. Laurence D. Charlet, USDA-ARS. Thanks also to Steve Sebesta, Cargill Hybrid Seeds; Gary Brewer, NDSU Entomology; and Brady Vick, USDA-ARS Oilseeds Research for their expertise in moderating the workshop sessions.

Questions regarding these proceedings may be directed to the National Sunflower Association, 4023 State Street, Bismarck, ND 58501.



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## POSTERS PRESENTED:

# PROGRESS ON IDENTIFYING THE NONTARGET HAZARDS ASSOCIATED WITH THE USE OF DRC-1339 AVICIDE IN SOUTH DAKOTA

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In August and September, 25 million blackbirds migrate through sunflower growing areas of North Dakota, South Dakota, and Minnesota. Sunflower growers forfeit about $5.0 million to these birds. Moreover, the cost of resources (e.g., vehicle, ammunition, scare devices and people) needed to protect fields from blackbirds is expensive. Growers and government agencies are using non-lethal techniques to reduce blackbird damage. However, methods developed thus far have limitations of costs, logistics and effectiveness.

In 1995, after six years of research in Louisiana and Texas, the Environmental Protection Agency (EPA) granted a Section 3 label for 'Compound DRC-1339 (3-chloro-4-methylbenzenamine HCL) Concentrate-Staging Areas' for bird damage control. A single seed of 2% (wt/wt) treated rice is highly toxic to blackbirds but many nontarget birds either are resistant to the chemical (e.g., house sparrows, birds-of-prey) or must ingest many treated seeds (e.g., ring-necked pheasants, waterfowl) to acquire a lethal dose of the avicide. Because acquiring a lethal dose of DRC-1339 is possible for pheasant and waterfowl, officials of state and federal agencies have emphasized that suitable testing must be completed before the operational use of DRC-1339 is started in the northern Great Plains.

Since 1993, quantitative data on the nontarget hazards of using DRC-1339 -treated rice in harvested grain fields in east-central South Dakota have been collected. In March and April 1993-1996, harvested corn and soybean fields were baited with untreated brown rice and brown rice treated with DRC-1339 avicide. Nontarget birds appeared to use corn stubble fields more than soybean fields. Of the 32 bird species visiting these fields, mallards, Canada geese, western meadowlarks, American tree sparrows, and killdeer were the most commonly observed species. The ring-necked pheasant and western meadowlark may be at the highest risk for acquiring a lethal dose of DRC-1339 because of their feeding ecology and susceptability to DRC-1339.

We evaluated the risk of avicide baiting to ring-necked pheasants at the Florida Field Station of the National Wildlife Research Center. In one study, 10 of 12 individually caged female pheasants preferred to eat cracked corn and sorghum over rice. In another study, brown rice eaten by pheasants over four days, while penned in 0.2 ha enclosure, exceeded that needed to acquire a median acute lethal dose of DRC-1339.

Based on consultations with various federal and state agencies, questions related to the primary hazards of DRC-1339 to nontarget birds, particularly pheasants, must be fully assessed. In 1997, retriever dogs will be tested for augmenting searches for dead birds, the number and kinds of wildlife scavenging on dead blackbirds will be documented, and specialized video equipment will be used for assessing nontarget hazards in harvested fields. A radio-telemetry study documenting the effects of DRC-1339-treated rice baits on the abundance of pheasants in the baited area will be conducted by South Dakota State University in 1998 and 1999.